



# Oregon

Kate Brown, Governor

## Department of Environmental Quality

Western Region Eugene Office

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TTY 711

September 25, 2018

Derik Vowels  
Jordan Cove LNG, LLC  
Consultant, Lead Environmental Advisor  
111 SW 5th Ave., Suite 1100,  
Portland OR 97204

Re: Additional Information Request  
Jordan Cove Energy Project (FERC Project No. CP17-494)  
Pacific Connector Gas Pipeline (FERC Project No. CP17-495)  
U.S. Army Corps of Engineers (Project No. NWP-2017-41)

Dear Mr. Vowels:

The Oregon Department of Environmental Quality (DEQ) is currently reviewing an application from Jordan Cove LNG, LLC (Jordan Cove) for Clean Water Act section 401 water quality certification necessary for construction of the Jordan Cove Energy Project and Pacific Connector Gas Pipeline (collectively, "the Project").

The information requested in Attachment A is necessary to complete DEQ's analysis of the Project's effects on water quality. Please file a complete response to this additional information request within 30 days of the date of this letter. Please forward your responses to:

Christopher Stine  
Oregon Department of Environmental Quality  
165 East 7th Avenue, Suite 100  
Eugene, Oregon 97401

If Jordan Cove cannot provide certain information within the requested period, please indicate which items will be delayed and provide a projected filing date.

If you have any questions, please contact me directly at (541) 686-7810, or via email at [stine.chris@deq.state.or.us](mailto:stine.chris@deq.state.or.us).

Christopher Stine, PE  
Water Quality Engineer

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Encl.: Attachment A – Additional Information Request

# ATTACHMENT A

Jordan Cove Energy Project / Pacific Connector Gas Pipeline

Additional Information Request:

Stormwater Management Plan

February 6, 2018 401 Water Quality Package (NWP-2017/41); Appendix D

## General Comments

1. Please update the Plan based on the requirements and guidance found in March 2018 Section 401 Water Quality Certification [Post-Construction Stormwater Management Plan Submission Guidelines](#). Specific examples of information needed to review this plan are noted in the comments below. As requested in these guidelines, provide an operations and maintenance plan for each structural stormwater control identifying the responsible party for maintenance.
2. This plan indicates that there are two small sanitary treatment plants. One of these treatment plants receives stormwater from chemical and oily containment areas in Ingram Yard. Depending on the design flow discharge for these plants or the need for 40 CFR §403-required pretreatment, this facility may need coverage under the NPDES 1200-Z General Permit. Please provide additional information to determine if the Liquefied Natural Gas Terminal will need a NPDES 1200-Z General Permit for its stormwater discharge.
3. DEQ requests additional information on the Plan's site map as noted in the specific comments below. The site map containing the stormwater and wastewater systems must clearly illustrate all the industrial activities, structures (e.g., storage tanks), and buildings located near these collection systems. The site map must also identify the direction of flow in these conveyance systems and on the potential pollutant sources (i.e., significant materials defined and noted below), buildings, tanks, and other structures that are located around the drains to the stormwater and wastewater systems. The requested information is necessary to: (1) evaluate the stormwater controls selected to prevent and minimize pollutant discharge to waters of the state, and (2) to determine what pollutants may be entering the stormwater and wastewater collection system. For example, Figure FS3054 of the site map does not show the Operations Building, Plant Warehouse, or Maintenance Building. Information on these permanent developments is necessary to determine if the section of the stormwater system with the Stormwater Inlets I-11 and I-75 are located inside or outside of these buildings.
4. All offsite areas identified in Section 5.3 of the Plan must provide information requested in the submission guidelines noted above for all transportation systems and other areas where Jordan Cove Energy Project will create new impervious surfaces discharging stormwater to waters of the state. If no new impervious surfaces are created but the proposed activities for these offsite areas will discharge pollutants to waters of the state, please describe the nature of these discharges and the proposed controls designed to prevent and/or treat these discharges and the design details for sizing and building these controls. For these offsite areas, describe all the activities that have the potential to expose stormwater to pollutants and note the specific pollutants associated with these activities. Please indicate if drainage from marine/estuarine dredged material will discharge to waters of state considered freshwater and describe the proposed controls to prevent these discharges from affecting the water quality of these receiving waters.

Please indicate if the stormwater drainage from impervious surface areas will discharge to saline or brackish waters affecting their water quality and note the controls Jordan Cove will use to manage direct discharge to these waters to conserve their preconstruction hydrology.

5. Please remove information on areas associated with the construction phase (e.g., construction facilities areas) of this facility unless these areas will be used for future construction activities after this facility – with its post-construction stormwater system – is in operation. Jordan Cove must provide information on facility construction addressed in the erosion and sediment control plan required by a NPDES 1200-C General Permit application. In the post-construction stormwater plan reviewed in these comments, please delineate and describe the surface conditions for areas designated as a “Construction Facilities Areas.” For example, please note the direction of stormwater flow and note the surface conditions such as compacted soil from previous development or construction activities, fill comprised of dredged material, restored soil (amended or ripped to restore infiltration rate), revegetated, undisturbed soil, gravel, permeable pavement, etc. If fill comprised of dredged material is deposited in these areas currently designated as construction facilities in the stormwater management plan, please provide information on how this fill is installed (e.g., compacted in lifts). In addition, provide information on the structural stormwater controls used in these areas, the locations of stormwater discharge, and the waters of the state [defined in OAR 340-0041-0002(72)] receiving this discharge.

6. Once all the comments below are addressed, please propose and provide an analysis demonstrating how stormwater discharge from the Liquefied Natural Gas Terminal will comply with state water quality standards found in OAR 340, Division 041.

7. DEQ’s Underground Injection Control database indicates that the Project site has an unregistered underground injection control system (UIC ID: 10242). This UIC is described as a hazardous facility injection (Category 4H). As required under Oregon Administrative Rules (OAR) 340-044, Jordan Cove Energy Project must register any existing UIC with DEQ, or close the UIC in accordance with DEQ regulations. Please address this issue.

## Specific Comments

<b>Page(s)</b>	<b>Section</b>	<b>Comments</b>
11	3.2	<ol style="list-style-type: none"> <li>1. The Plan does not adequately indicate how the proposed stormwater management system will prevent or remove pollutants in stormwater. Guidelines for developing this information are found in Section E.7 of the submission guidelines noted above. As requested in Section E.7, demonstrate that each structural stormwater control is appropriately sized and designed to protect a receiving water's beneficial uses and existing water quality.</li> <li>2. As requested in Section E.2.3 of the submission guidelines noted above, identify the highest anticipated groundwater elevation at each structural stormwater control and provide the invert elevation of the outlets and bottom of each structural stormwater control.</li> <li>3. For structural stormwater controls involving infiltration, provide at least one infiltration test in each area considered for this type of control as requested in Section E.3.3 of the submission guidelines. The infiltration results in Attachment F were performed at the APCO Sites (North Point) rather than the Liquefied Natural Gas Terminal.</li> <li>4. Also, as requested in Section E.8 of submission guidelines, provide design details for how Jordan Cove Energy Project will prevent sediment in construction runoff from entering structural stormwater controls before these controls are commissioned for operation.</li> </ol>
13	4.3	<p>Current aerial photos show existing developments (buildings, roads, parking areas) and the remnants of past developments (e.g., foundations for tanks, impervious surfaces) at the site. Jordan Cove Energy Project proposes structural stormwater controls to be sited at some of these developed areas and the soils underlying them. For example, Jordan Cove proposes to locate a vegetated infiltration basin east of a gravel road and northwest of the gas metering station in Figure S3058. Please provide the actions that Jordan Cove will take to address soil compaction from past development and, if applicable, compacted fill placed on this site prior to installing structural controls involving infiltration to ensure structural stormwater controls will achieve the design infiltration rate.</p>
17	5.2	<ol style="list-style-type: none"> <li>1. Please provide a list of all outdoor activities that will occur at this facility which may affect stormwater quality. Please note the location of these outdoor activities in the plan's figures. Provide a comprehensive list "significant materials" – as defined in DEQ's <a href="#">NPDES 1200-Z General Permit</a> – that are associated with these activities or that Jordan Cove Energy Project will use at this facility.</li> <li>2. Identify all the potential stormwater pollutants associated with the significant materials requested above and modify/refine Table 5-1 with any additional information generated from this requested review of significant materials. Identify on the plan's figures (i.e., site map) where these significant materials will be stored, loaded/unloaded for transport, and used as well as an estimate of the quantity of significant materials stored.</li> </ol>
18-20	5.3	<ol style="list-style-type: none"> <li>1. Please provide the stormwater pollution control plan and other information requested in application for a <a href="#">NPDES 1200-A General Permit</a> for the concrete batch plant at Box Car Hill offsite project area.</li> <li>2. Please provide a stormwater management plan as requested in Section E of DEQ's 401 Water Quality stormwater plan submission guidelines noted above for each offsite project area. The stormwater management plan should include the project boundary, the permanent contributing impervious area (such as asphalt, concrete, gravel etc.), and the conveyance system. In this plan, please identify the following: <ol style="list-style-type: none"> <li>a) Location of structural stormwater controls to capture and treat the stormwater from the contributing impervious surface area;</li> <li>b) The direction of stormwater drainage in the CIA;</li> </ol> </li> </ol>

		<ul style="list-style-type: none"> <li>c) The point of stormwater discharge;</li> <li>d) Any waters of the state receiving this discharge, and the location of significant materials as defined above that is used or stored at each offsite;</li> <li>e) The location of both coastal brackish marsh and freshwater wetlands, the location of the placement (if applicable) of dredge marine/estuarine materials and/or soil from the dry excavation of the Marin Slip at the Liquefied Natural Gas Terminal; and,</li> <li>f) The direction flow of any saline drainage from marine/estuarine dredged material.</li> </ul>
21	5.4	<p>The Plan indicates, “excess runoff during storm events with a return interval longer than the design storm event may make its way into the Ingram Yard stormwater system.” Please include the drainage area from the Roseburg Site generating this run-on entering into the Ingram Yard stormwater conveyance system in the PondPack Calculations presented in the LNG Terminal’s stormwater management plan.</p>
28	5.8.1.1.2	<ol style="list-style-type: none"> <li>1. Please identify on the site map for this plan how Jordan Cove Energy Project will manage stormwater from the gravel road east of the Secondary South Dunes Entrance (see Figure FS3056) to prevent the discharge of untreated stormwater into Wetlands B, C, D, and E.</li> <li>2. Please identify the location of the structural stormwater controls for the “asphalt road from Old Jordan Cove Road to the raised South Dunes pad”. Please identify the direction of drainage, stormwater discharge points, and design details for the structural stormwater controls for this asphalt road.</li> <li>3. Please locate the swale in the South Dunes section of the facility that drains “the asphalt road to the gas metering station” and that discharges to the vegetated infiltration basin with an overflow to Outfall 007. Please provide the design details for this swale as requested in E.7 of DEQ’s 401 Water Quality stormwater plan submission guidelines noted above.</li> <li>4. Please identify the location of the “filter strips along the shoulders” and the “vegetated side slopes” to treat stormwater along the gravel road from Jordan Cove Road to the South Dunes of this facility. Please provide the design details for these controls as requested in E.7 of DEQ’s 401 Water Quality stormwater plan submission guidelines noted above.</li> <li>5. For the road widening at the TPP/US-101 intersection and the roadway improvements associated with the Kentucky Project and Golf Course Lane, please provide the site map for these stormwater management systems as well as the information requested in Section E of the submission guidelines noted above. In particular, as requested in Section E.7 of the submission guidelines, please provide the design details including pretreatment design elements for the proposed cartridge filters and provide their general use level designation by Washington Department of Ecology’s Technology Assessment Protocol (see Section E.6.1 of plan submission guidelines) for fecal choliform as well as other pollutants anticipated in its drainage area. Indicate whether Jordan Cove considered a bioretention filter system or other controls for the locations where a cartridge filter is proposed given the research on using bioretention to remove bacteria in stormwater.</li> </ol>
29	5.8.1.1.3	<p>Figure FS3052 of the Plan shows structural stormwater controls for the Tug Boat Dock area (oily containment area and cartridge filters CF-136 and CF-138) at negative elevations on a slope in the slip area with no base to support this stormwater infrastructure. Please explain the negative elevations for these stormwater controls. If Jordan Cove Energy Project will provide stormwater controls in this area, DEQ needs additional information on these controls. As requested in Section E.7 of the submission guidelines, please provide the design details including pretreatment design elements for the proposed cartridge filters and provide their general use level designation by Washington Department of Ecology’s Technology Assessment Protocol (see Section E.6.1 of plan submission guidelines) particularly for fecal choliform as well as other pollutants anticipated in the drainage area.</p>

29 & 30	5.8.1.2	<ol style="list-style-type: none"> <li>1. Please delineate impervious surface areas containing gravel, concrete, and asphalt surfaces contributing to stormwater runoff.</li> <li>2. Please identify pretreatment controls used for structural stormwater controls treating stormwater from all gravel surfaces.</li> <li>3. Please locate on the site map the “Material Off-Loading Facility” and the structural stormwater controls for this area. Please refer to the comment below on Figure FS3053 regarding the cartridge filters discharging to Outfalls 005 and 006 and refer to the comment above on Figure FS3052 on cartridge filters in the Tug Boat Dock discharging to Outfalls 008 and 009.</li> <li>4. See the comment above on Section 5.3 of this facility’s plan regarding the need for post-construction stormwater management plans for the off-site locations noted above.</li> <li>5. For the Roseburg site, please describe the surface conditions [e.g., compacted soil from previous development, restored soil (amended or ripped to restore infiltration rate and revegetated), undisturbed soil, gravel road, gravel equipment area, asphalt road, concrete, etc.] and any stormwater pretreatment controls that Jordan Cove may need to manage the run-on from this site. Please identify all the significant materials and their associated pollutants used in this Roseburg site’s drainage area that is contributing stormwater to Ingram Yard. Please add these significant materials and their associated pollutants to those requested in the comments above on Section 5.2 of the plan.</li> </ol>
30 & 31	5.8.2.1	<ol style="list-style-type: none"> <li>1. Please show the location where Jordan Cove Energy Project will use equipment covers to prevent stormwater from contacting and transporting pollutants.</li> <li>2. The plan indicates that stormwater from outdoor storage areas will drain to an oily waste conveyance system connected to a buried oil/water separator with its effluent discharged to the Industrial Wastewater Pipeline. This Plan description is not consistent with the Plan’s site map. As noted below in comments on the site map (Figure FS3052), the oil/water separator discharges to an unidentified object northwest of this separator. This unidentified object shows a connection to both a sanitary sewer system and a “connection to IWWP” that is also connected to a sanitary sewer system. Please clarify the collection, treatment, and discharge of oily waste on the site map and Plan narrative.</li> <li>3. Please identify all outside storage areas, as requested above, that will drain to the stormwater, oily waste, industrial wastewater, and sanitary system and identify all the significant materials stored in these areas and their associated pollutant that can contact stormwater.</li> </ol>
31	5.8.2.3	<ol style="list-style-type: none"> <li>1. Please identify on site maps all the areas designated as “wash bays for vehicle and equipment washing” and show their connections to a collection system and to treatment controls. Please note, as we receive more information about your vehicle and equipment washing, Jordan Cove Energy Project may need to submit an Application for a NPDES Individual Permit for its discharge of washwater from these activities.</li> <li>2. As discussed in this <a href="#">EPA fact sheet on oil/water separators</a>, detergents are emulsifying cleaning compounds that disperse oil in water. This makes oil/water separators ineffective and allows oil to pass to the sewer or industrial wastewater treatment process. Please provide information on the practices and cleaning agents Jordan Cove Energy Project proposes to use in these wash bays and their effect on the treatment provided by the oil/water separators and, if applicable, the wastewater or stormwater treatment system.</li> </ol>
32	5.8.2.4	<ol style="list-style-type: none"> <li>1. The site map in Figures FS5057 and FS5058 shows that the oily containment area for the Helipad has an oily waste line connected to the SORSC Building but shows no connection to an oil/water separator nor a discharge point. Please provide more information on the collection system and treatment system for the stormwater arising from the Helipad’s drainage area.</li> <li>2. This section of the plan indicates that there is an oil/water separator in the wash bay at the SORSC Building but the site map for this plan (i.e., Figure FS3057) does not</li> </ol>

		show this wash bay nor the oil/water separator. Please provide this information on the site map and, as noted above, information on collection system and treatment system for this wash bay. Please note that Jordan Cove Energy Project may have to submit an Application for an Individual Wastewater Permit Application for the discharge of washwater to surface waters.
32	5.8.2.5	<ol style="list-style-type: none"> <li>1. Please identify on the site map the tanks and equipment receiving full containment (i.e., oil volume, design storm volume, and design fire flow volume) and those tanks not receiving full containment. Please describe how Jordan Cove will manage stormwater managed from these areas. Illustrate these stormwater management approaches on the site map.</li> <li>2. Please show on the site map the structural stormwater control(s) receiving drainage from tanks and equipment areas in remote locations where it is infeasible to connect to the oily waste system. Provide the design details for these control(s), their drainage area, and independent research supporting their pollutant removal efficiencies for the pollutants anticipated in these drainage areas.</li> <li>3. The plan indicates that, when full containment is provided, Jordan Cove will use a manual valve to discharge rain or wash water to the storm drain system after visual inspection. Jordan Cove cannot discharge wastewater from washing activities into a stormwater system and discharge this wastewater to waters of the state without a NPDES permit. Please submit an Individual NPDES Permit Application for the discharge of this washwater from this drainage area and other drainage areas where Jordan Cove manages stormwater in this manner.</li> </ol>
33	5.8.2.6	<ol style="list-style-type: none"> <li>1. This section of the plan notes that Jordan Cove Energy Project will design the oil/water separator to meet the effluent requirements of the NPDES permit for the Industrial Wastewater Pipeline. However, the oil/water separator in Ingram Yard in the figure provided does not connect to the industrial wastewater treatment system. Rather, the oil/water separator in the Ingram Yard section connects to an unknown object as indicated in the comments on Figure FS3052. This unknown object connects to a “sanitary sewer system” and a “connection to the IWWP.” Please clarify this discrepancy between the Plan and the site map.</li> <li>2. Section 5.8.2.4 of the Plan indicates runoff from the Helipad will drain to an oil/water separator. However, Jordan Cove does not note this feature on the site map. Please identify the oil/water separator for the SORSC wash bay and its associated conveyance system on the site map. Please note, as we receive more information about your vehicle and equipment-washing activities, Jordan Cove Energy Project may need to submit an Application for a NPDES Individual Permit for its discharge of washwater from these activities.</li> </ol>
33	5.8.3.2	<ol style="list-style-type: none"> <li>1. Please locate on the Ingram Yard site map where amine and ammonia is stored so the reviewer can evaluate this storage area and its relationship to drains, collections conveyance systems, and treatment systems in the area.</li> <li>2. As noted elsewhere in these comments, Jordan Cove connects the oil/water separator in Ingram Yard to an unknown object in the site map with connections for the Industrial Wastewater Pipeline and the sanitary waste system. In the stormwater management plan, Jordan Cove Energy Project has not identified the wastewater treatment system for the industrial wastewater pipeline. Please provide this information.</li> </ol>
33	5.8.3.2	<ol style="list-style-type: none"> <li>1. Please identify on the site map the liquefaction slabs, slabs under the pipe racks containing LNG piping, below-grade trench carrying LNG piping, and bermed area around the LNG tanks and their containment systems.</li> <li>2. If not already provided in Figure FS3052 of the site map, please provide the drainage systems for these containment systems.</li> </ol>
34	5.8.3.3	<ol style="list-style-type: none"> <li>1. Is the chemical containment area in Row A and Colum 4 of Figure FS3052 for the Refrigerant Make-Up Storage Area? Please identify the location of the Refrigerant Make-Up Storage Area on the site map.</li> <li>2. Please identify the truck unloading manifolds inside the curbed area and identify in the site map the location of all areas where significant materials – as noted in these</li> </ol>

		<p>comments – will be loaded and unloaded and note the stormwater controls to minimize the contact of these materials with stormwater.</p> <p>3. Please identify on the site map the pump system and the stormwater collection system associated with the containment area for the refrigerant.</p>
39	8.0	<p>1. After addressing the comments in this table, DEQ will review the sizing for the structural stormwater controls proposed for stormwater treatment.</p> <p>2. Please identify the flow-through proprietary controls that will be used and provide the information requested in DEQ's 401 submission guidelines noted above, provide their general use level designation by Washington Department of Ecology's Technology Assessment Protocol (see Section E.6.1 of plan submission guidelines), and identify if these flow controls will be on-line or offline.</p> <p>3. Please use local rainfall data in sizing any proposed flow-through type facilities and use Section E.7.2 of the submission guidelines to size structural stormwater controls. The project proponent may be more protective in designing volume-based structural stormwater controls but should use the 2-year 24-hour precipitation for this site when identifying the design depth.</p>
40	8.4	<p>1. The titles of the controls used in Table 8-1 do not correspond with the titles of the controls used in Appendix K (PondPack Calculations). Please use consistent terms for the controls proposed so that the reviewer can determine which controls Jordan Cove evaluated in the PondPack analysis.</p> <p>2. Please ensure that all the infiltration structural stormwater controls identified on the site map and in Table 8-1 were included in the PondPack Calculations. Jordan Cove only considers five controls in the calculations and there are ten infiltration controls identified in Table 8-1.</p>
42	8.6.2	As noted in the comment above, not all of the infiltration controls presented in the plan and site map are included in the PondPack calculations.
43	9.0	Please note that, if DEQ requests an Application for a NPDES 1200-Z General Permit after receiving the information requested above on the two sanitary treatment system at the LNG Terminal, the NPDES 1200-Z Permit will require monitoring in compliance with Schedule B of this permit.
Site Map		DEQ requires the following information to identify potential sources of stormwater pollution and to evaluate measures to prevent or mitigate these impacts. The information requested below is information DEQ requests on a site map for industrial stormwater management plan. Additionally, when responding to these comments and submitting revisions to the site map, please provide the revised site map to DEQ as a hard copy of a full size plan set that DEQ can review without magnification.
		Please distinguish if a wetland is a freshwater wetland or coastal brackish marsh.
		Please indicate the drainage direction in all areas of this facility.
		Please indicate the direction of flow in all conveyances systems (stormwater, wastewater, oily waste etc.)
		Please delineate the types contributing impervious area (CIA) (concrete, asphalt, gravel surfaces and built structures) serviced by a structural stormwater control and its outfall. Identify the materials comprising this CIA.
		Please identify areas used for outdoor manufacturing, treatment, storage, or disposal of significant materials (as defined above) in relation to the stormwater collection system.
		<p>Please indicate on the site map where Jordan Cove exposes to stormwater such activities as:</p> <ul style="list-style-type: none"> <li>• Vehicle and equipment washing</li> <li>• Loading/unloading areas</li> <li>• Location of treatment/storage/disposal of wastes</li> <li>• Liquefied storage tanks</li> <li>• Transfer areas for substances in bulk</li> <li>• Machinery</li> </ul>

		Please identify the anticipated average daily traffic count for roadways.
		Please identify the location of any groundwater wells in this facility.
		Please identify waste injection wells, seepage pits, and/or dry wells.
		Please identify the location and description of spill prevention and cleanup materials.
		Please identify the location of all monitoring points.
	FS3051	<ol style="list-style-type: none"> <li>1. Please include in the legend a symbol for vegetated infiltration basins.</li> <li>2. In the northwest corner of the Ingram Yard section of this figure, Jordan Cove Energy Project shows a “connection to the IWWP” discharging to a filter strip that connects to the Industrial Wastewater Pipeline. However, Section 8.2 of the plan identifies filter strips as a filtration facility for treating stormwater. The site map shows this filter strip treating industrial wastewater and stormwater. Please explain this discrepancy. If this filter strip treats only stormwater, please provide the design details and other information requested in Section E.7 of the submission guidelines.</li> <li>3. The path of the “connection to the IWWP” leading to this filter strip noted above is unclear as it blends in with a drainage boundary in another portion of the site map (see Figure FS3052, Row A and Columns 5/6). Please clearly delineate the path for this section of the “connection to the IWWP” so DEQ can determine the source of this flow in the site map.</li> <li>4. As requested above in the general comments regarding the Section 401 submission guidelines, please provide the design details and other information on the open-grated infiltration basin sited in the area located in Row E and Column 1.</li> <li>5. Jordan Cove did not provide information on the following: (a) how it will manage post-construction stormwater after construction is concluded in the construction facilities areas, (b) the activities that will occur in these areas, and (c) the potential sources of pollutants associated with these activities. For these areas, please indicate the following: (a) direction of flow for stormwater, (b) identify the stormwater collection system, (c) the stormwater discharge point(s), (d) waters of the state receiving this discharge, (e) the structural stormwater controls used to treat this discharge, and (f) the design details for these structural stormwater controls.</li> <li>6. Please provide information on how the preparation of the construction facilities area, nominally graded to elevation 46-48’, will alter this site’s hydrology and indicate if the stormwater flows from this area will alter the hydrology Wetland 2013-1. For example, will Jordan Cove compact this site and modify the surface to better support construction staging? Also, please identify the measures that Jordan Cove will implement to mimic predevelopment flows into this wetland and to treat pollutant discharge from the activities from the activities proposed for this area once construction is finished.</li> </ol>
	FS3052	<ol style="list-style-type: none"> <li>1. Please identify the activities performed and the significant materials stored, used, and the pollutants potentially discharged from the oily, LNG, and chemical containment areas. Please show all conveyance systems associated with these containment systems and the direction of flow in these conveyance systems. For example, the chemical containment area in Row A and Column 6 of this figure shows no conveyance system. How will Jordan Cove Energy Project manage stormwater in this chemical containment area?</li> <li>2. Please show the buried stormwater system and buried infiltration chambers discussed in Section 5.8.1.1.2 on roads for the Ingram Yard area. Please provide design details for the buried infiltration chambers. Are the buried infiltration chamber(s) UICs?</li> <li>3. Please identify on the site map the rainwater sump noted in Section 5.8.3.2 for the LNG impoundment basin as well as the discharge point into the oily waste system.</li> <li>4. The oily waste line traveling north and northeast from the LNG impoundment basin with rainwater sump pumps connects to a oily waste line that blends into a drainage boundary line on the site map such that DEQ cannot determine its destination and connections. Please distinguish this oily waste line from the drainage boundary line and please show its connections and discharge point.</li> <li>5. Northwest of the LNG Impoundment Basin with Rainwater Sump Pump is a ditch/swale line that coincides with a sanitary sewer system. Is this a mapping error?</li> </ol>

	<ol style="list-style-type: none"> <li>6. The small oily containment system in Row A and Column 6 of this Figure has no connection to the oily waste system yet an oily waste line is in close proximity. Please explain.</li> <li>7. Please identify the activities and significant materials in the chemical containment area in Row A and Column 6. Please describe this containment system and indicate whether this area is exposed to rainfall.</li> <li>8. In Row A and Column 6 of this figure, please identify the object southeast of the chemical containment area that is connected to the oil/water separator. Describe the function of this unidentified object. Is this object connected to the chemical containment area to the northwest? This object shows a “connection to IWWP” line on its eastern side that turns north and connects to a sanitary sewer system line. This map detail conflicts with information in Section 5.8.2.1 on page 31 indicating that Jordan Cove will pump the effluent from the oil/water separator to the re-routed Industrial Wastewater Pipeline (IWWP) and discharged at a permitted outfall. Please address this discrepancy.</li> <li>9. In Row A and Columns 5 and 6 of this figure, the connection to IWWP conveyance line is difficult to see without high magnification due to its blending with the drainage boundary. Please distinguish this connection to IWWP line from the drainage boundary line in a revised figure so that DEQ can identify its discharge point and connections.</li> <li>10. In Row A and Column 7 of this figure, please provide the direction of flow and more information on the functioning of OMH-154 which is currently showing the following connections: <ol style="list-style-type: none"> <li>a. The oily waste line north of this man hole that is connected to a sanitary waste line which is connected to the sanitary treatment package in Figure FS3054 and</li> <li>b. The line south of OMH-154 that Jordan Cove connect to the oil/water separator in Figure FS3052 which also discharges to the sanitary treatment package in Figure FS3054.</li> </ol> </li> <li>11. Is the infiltration trench in Rows E/F and Columns 5/6 an underground injection control? Please delineate its drainage area, provide information on the drainage pattern, and note the significant materials (as defined above) for this drainage area. If this is a UIC, please indicate if the stormwater in this area is exposed to “hazardous substances, toxic materials and petroleum products?” If exposed to these products, Jordan Cove Energy Project will need to submit a certification that stormwater is not exposed to industrial activities and hazardous substances and toxic materials prior to the construction of this UIC. Please provide the design details and information requested in Section E.7 of the Section 401 submission guidelines noted above for this infiltration trench.</li> <li>12. Is the small oily containment area southeast of the buried infiltration chamber in Row D and Column 2 exposed to rainfall? Will Jordan Cove connect this area to the oily waste system or is it connected to the sanitary sewer system immediately south of this containment area? If Jordan Cove will not be connect this area to the oily waste system or sanitary waste system, will Jordan Cove cover this area to avoid exposure to the rainfall? If not, please provide information on the stormwater drainage for this area.</li> <li>13. Please identify which structural stormwater control (Buried Infiltration Chamber, Stormtrap Doubletrap etc.) will be used in Rows C and D and Columns 2 and 3 and provide its design details and information requested in Section E.7 of the 401 submission guidelines noted above.</li> <li>14. Describe the oily containment area associated with Outfall 008 (Cartridge Filter 136) and Outfall 009 (Cartridge Filter 138) in Row E/F and Column 3/4 that is sited on an elevation between -10’ and - 35’. Given these elevations, will the containment area, cartridge filters, and outfalls be submerged?</li> <li>15. Please provide the design details including pretreatment design elements for cartridge filters (CF-119/Outfall 001) and provide their general use level designation by Washington Department of Ecology’s Technology Assessment Protocol (see Section</li> </ol>
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		E.6.1 of plan submission guidelines) for fecal choliform, oil and grease, and other pollutants anticipated in its drainage area. Given the effectiveness of bioretention for bacteria and other pollutants, did Jordan Cove consider a bioretention filter treatment system for this area as it was further south?
	FS3053	<ol style="list-style-type: none"> <li>1. Please show the buried stormwater system and buried infiltration chambers discussed in Section 5.8.1.1.2 for the asphalt and gravel roads in the Ingram Yard area.</li> <li>2. The delineation of drainage boundaries is excessive in this figure as well as others. Please just delineate the boundaries of the drainage area for each structural stormwater control and its discharge point.</li> <li>3. Please provide the design details and information requested in Section E.7 of the Section 401 submission guidelines noted above for the two infiltration trenches managing the stormwater on the western and eastern slips. Are these infiltration trenches underground injection controls? Please delineate their drainage areas and note the significant materials (as defined above) and the drainage pattern for this area. If this is a UIC, please indicate if the stormwater in this area is exposed to “hazardous substances, toxic materials and petroleum products?” If exposed to these products, Jordan Cove Energy Project will need to submit a certification that stormwater is not exposed to industrial activities and hazardous substances and toxic materials prior to the construction of this UIC.</li> <li>4. Please show the drainage direction for the area on the western side of the slip between the two drainage ditches.</li> <li>5. Please provide the design details and information requested in Section E.7 of the Section 401 submission guidelines noted above for the open-graded aggregate infiltration basins discharging to Outfalls 004 and 013.</li> <li>6. Please provide the design details and information requested in Section E.7 of the Section 401 submission guidelines for the cartridge filters (CF-56 and 55) discharging to Outfalls 005 and 006. Please provide their general use level designation by Washington Department of Ecology’s Technology Assessment Protocol (see Section E.6.1 of plan submission guidelines) particularly for fecal choliform as well as other pollutants anticipated in its drainage area. Given the effectiveness of bioretention for bacteria and other pollutants and its use on the other side of the Marin Slip, was a bioretention filter treatment system considered for this side of the slip?</li> <li>7. Please provide information on the oily containment area south of the open-graded aggregate infiltration basin in Row B and Column 5 of this figure. Is this containment area exposed to rainfall and does it have a treatment system? Unlike other oily containment areas in this facility, this containment area has no connection to the oily waste system. Is a cover proposed for this area to avoid exposure to rainfall and to avoid oil-contaminated discharge into I-65?</li> <li>8. Please identify the site map feature in Row A and Column 6 that is on the western side of what may be an asphalt road. The map legend does not define this feature. If this is a structural stormwater control with its collection system, please provide the design details and information requested in Section E.7 of the Section 401 submission guidelines.</li> <li>9. Are the ditch/swales in Row A and Colum 6 of this figure for treatment or conveyance? If these are for treatment, please provide their design details as requested in Section E.7 of the Section 401 submission guidelines.</li> </ol>
	FS3054	Please show the buried stormwater system and buried infiltration chambers associated with roads as discussed in Section 5.8.1.1.2 for the Access and Utility Corridor. Please provide design details for the buried infiltration chambers. Are the buried infiltration chamber(s) UICs?
	FS3055	Please show the buried stormwater system and buried infiltration chambers associated with roads as discussed in Section 5.8.1.1.2 for the Access and Utility Corridor. Please provide design details for the buried infiltration chambers. Are the buried infiltration chamber(s) UICs?

FS3056	<ol style="list-style-type: none"> <li>1. Please provide the design details for the filter strip as requested in Section E.7 of the Section 401 submission guidelines.</li> <li>2. Please show the buried stormwater system and buried infiltration chambers associated with roads as discussed in Section 5.8.1.1.2 for the Access and Utility Corridor. Please provide design details for the buried infiltration chambers. Are the buried infiltration chamber(s) UICs?</li> </ol>
FS3057	<ol style="list-style-type: none"> <li>1. Jordan Cove provides no information on stormwater management in the construction facilities area. Please indicate the direction of flow for stormwater in the construction facilities area and the discharge point(s) for this flow.</li> <li>2. Please provide information on how the preparation of the construction facilities area nominally graded to elevation 68-70' will alter this site's hydrology and indicate if this changed hydrology will affect waters of the state such as Wetland E and M. Please describe the surface conditions for this area once construction is complete. Please identify the measures Jordan Cove Energy Project will implement to preserve the predevelopment flows into surrounding wetlands and to treat the discharge of pollutants from the Terminal activities that will occur in this area.</li> <li>3. Please provide information on the stormwater treatment system and discharge point(s) for stormwater arising from the gravel road south of the construction facilities area noted above. Will Jordan Cove connect this stormwater treatment system to the system noted in Section 5.8.1.1.2 that manages the gravel and asphalt roads in the Ingram Yard area and the Access and Utility Corridor area?</li> </ol>
FS3058	<p>Please provide information on the stormwater controls for the gravel road from the "Secondary South Dunes Entrance" and connecting to the asphalt road northwest of the vegetated infiltration basin in Row A and Column 6.</p>
FS3059	<ol style="list-style-type: none"> <li>1. There is no discharge point for the oily waste system from the SORSC Building to the oily containment area. Where will this stormwater be discharged from this containment area and what oily wastes from the SORSC will be discharged into this oily waste system? Will the disposal of these oily wastes in the SORSC Building require a separate NPDES wastewater permit? Please clarify.</li> <li>2. For the gas metering station and for the area south of the oily containment area, please provide information on the surface condition (e.g., impervious, compacted soil, native soil, restored soil etc.), the direction of stormwater drainage, and the stormwater controls for this drainage.</li> <li>3. Please provide information on how stormwater will be managed on the Construction Facilities Areas Nominally Graded to Elevation 68' and to Elevation 63'. Please include information on the surface conditions, drainage patterns, stormwater discharge points, and any structural stormwater controls installed to treat stormwater discharge for these two area. Please note if discharge from this area once construction is complete will alter the hydrology of Wetland J.</li> </ol>